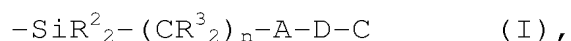


Claims

1. A curable composition **Z** comprising a binder **BM** that carries at least one ethylenically unsaturated group and also
5 particles **P** which possess at least one ethylenically unsaturated group on their surface and contain radicals of the general formula I,



10

where

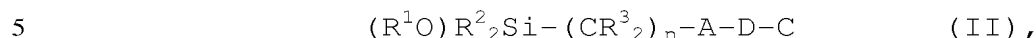
- R**² is $-(\text{CR}^3_2)_n-\text{A}-\text{D}-\text{C}$ or a hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or **NR**⁴ groups,
15 **R**³ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or **NR**⁴ groups,
R⁴ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms,
20 **A** is oxygen, sulfur, $=\text{NR}^4$ or $=\text{N}-(\text{D}-\text{C})$,
D is carbonyl group, alkylene, cycloalkylene or arylene radical having in each case 1 to 12 carbon atoms, it being possible for the carbon chain to be interrupted by nonadjacent oxygen, sulfur or **NR**⁴ groups,
25 **C** is an ethylenically unsaturated group and
n is greater than or equal to 1.

2. A composition **Z** of claim 1, wherein the particles **P** are preparable by reacting

- 30 (a) particles **P1** of a material selected from metal oxides, metal-silicon mixed oxides, silicon dioxide, colloidal silicon dioxide and organopolysiloxane resins and combinations thereof, and possessing functions selected

from Me-OH, Si-OH, Me-O-Me, Me-O-Si, Si-O-Si, Me-OR¹ and Si-OR¹,

(b) with organosilanes **B** of the general formula II,



and/or their hydrolysis and/or condensation products,

(c) and optionally with water,

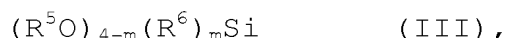
10 where

R¹ is hydrogen or hydrocarbon radical having 1 to 6 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,

Me is a metal atom and

15 **R**², **R**³, **A**, **D**, **C** and **n** are as defined for claim 1.

3. A composition **Z** of claim 1, wherein the particles **P** are preparable by cohydrolyzing organosilanes **B** of the general formula II with alkoxysilanes **B**^{*} of the general formula
20 III,



where

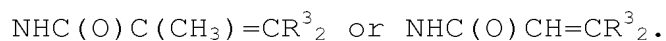
25 **R**⁵ has the definitions of **R**¹,

R⁶ is hydrocarbon radical which can be substituted, and

m denotes the values 0, 1, 2 or 3.

4. A composition **Z** of claim 2 and 3, wherein the hydrocarbon radical **R**¹ is a methyl, ethyl or phenyl radical.
30

5. A composition **Z** of claim 1 to 4, wherein the groups (-A-D-C) are the radicals OC(O)C(CH₃)=CR³₂, OC(O)CH=CR³₂,



6. A composition **Z** of claim 1 to 5, wherein the ethylenically
unsaturated groups in the binder **BM** are capable of free-
5 radical, cationic or anionic polymerization.

7. A composition **Z** of claim 1 to 6, wherein the ethylenically
unsaturated groups in the binder **BM** can be polymerized by
actinic radiation or thermal treatment.

8. A composition **Z** of claim 1 to 7, wherein the ethylenically
unsaturated groups in the binder **BM** are selected from vinyl
groups, methacrylate groups, acrylate groups and acrylamide
groups.

9. A composition **Z** of claim 1 to 8, wherein the particles **P1**
possess an average diameter of less than 1000 nm, the
particle size being determined by transmission electron
microscopy.

10. The use of a composition **Z** of claim 1 to 9 for coating
substrates.